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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,596	05/17/2004	David B. Riggs	FIS920010074	3595

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EXAMINER	
MARKOFF, ALEXANDER	
ART UNIT	PAPER NUMBER
1746	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,596	RIGGS ET AL.	
	Examiner	Art Unit	
	Alexander Markoff	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6,7 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6, 7 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-4, 6, 7 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The applicants amended the claims to recite that the step of coating of the material with the claimed solvents is conducted subsequent to implantation of dopant ions and prior to any other semiconductor manufacturing process.

The original disclosure fails to support the limitation of conducting the coating step prior to any other semiconductor manufacturing process.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, 7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al (US Patent No 4,144,634).

Chang et al teach that methods of cleaning substrates with dopant ions with solvents as claimed were known in the art. Chang et al also teach heating the substrates. See entire document, especially column 5, line 41-44 and column 6, lines 5-10.

5. Claims 1, 4, 6, 7 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Giedd (US Patent No 6,489,616).

Giedd teaches a method as claimed. See entire document especially column 15, line 65 – column 16, line 11. Giedd states that removing dopant ions with the claimed solvents was conventional in the art (column 16, lines 6-11).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Chang and Giedd.

Chang and Giedd teach the claimed method except for specific recitation of rinsing the substrate with water.

However, it is notoriously well-known that rinsing substrate with water is a conventional step of a conventional semiconductor manufacturing process, which is conducted after any liquid chemical processing of after a CMP process it would have been obvious to an ordinary artisan at the time the invention was made that at least at some point of manufacturing of the devices of Chang and Giedd the substrates would be rinse with water.

10. Claims 1-4, 6, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the state of the prior art admitted by the applicants in view of Giedd.

The applicants admitted in the specification that it was known in the art that control of the dopant ions is critical for the device performance and that diffusion of the

ions into undesired areas can damage the device (part [0008]). The applicants further admitted that conventional cleaning methods conducted at different stages of the manufacturing comprise heating and rinsing the substrates (parts [0009-0013]).

Giedd teaches that removing dopant ions with the solvents as claimed was conventional in the art (column 16, lines 6-11).

It would have been obvious to an ordinary artisan at the time the invention was made to utilize cleaning of dopant ions disclosed by Giedd as conventional for it's conventional purpose to remove dopant ions from undesired areas in the prior processes disclosed by the admitted prior art with reasonable expectation of success in order to prevent damage of the devices by the ions in undesired areas.

Response to Arguments

11. Applicant's arguments filed 04/81/2007 have been fully considered but they are not persuasive.

With respect to the rejection made under 35 USC 112(1) the applicants allege that the specification at paragraph 25 supports the claimed limitations of conducting the coating step prior to any other semiconductor manufacturing process. The applicants cite the text, which states that the cleaning is preferably utilized prior to the gate oxidation.

First, it is not clear what is referenced as paragraph 25 because paragraph [0025] does not contain the text cited by the applicants.

Second, even assuming that the specification contains the cited text at some other place, the recitation of the preferable utilization of cleaning prior to gate oxidation

does not support the claimed limitation of conducting the coating step prior to any other semiconductor manufacturing process. In contrast to the applicants allegation the specification teaches cleaning after etching or nitride removal from the collar region (specification paragraph [0026]).

With respect to the rejection made over Chang et al the applicants allege that the document does not teach the use of the specific solvent claimed and implementation of the ions.

The arguments are not persuasive.

First in contrast to the applicants' allegation Chang et al teach the claimed solvent (acetone) and teach implementation of ions. The examiner would like to note that the claims are not limited to any specific way of ion implementation and that the specification teaches implementation by using the films (paragraph [0026]).

With respect ot he rejection made over Giedd the applicants allege that Giedd does not teach cleaning after ion implantation and prior to other manufacturing steps.

This is not persuasive because in contrast to the applicants' allegation Giedd teaches cleaning remaining dopants from the surface with acetone after the implantation process (column 16, lines 3-11).

With respect to the rejections made under 35 USC 103 the applicants rely on the previously addressed arguments made with respect to the rejections made under 35 USC 102.

The referenced arguments are not persuasive for the reasons provided above, in contrast to the applicants statements the applied documents teach the claimed limitations.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alexander Markoff
Primary Examiner
Art Unit 1746

AM

ALEXANDER MARKOFF
PRIMARY EXAMINER